

## **DEVICE FOR FASTENING BARREL OF GAS OPERATED SOLDERING GUN**

### **FIELD OF THE INVENTION**

The present invention relates to fastening devices and more particularly  
5 to a device for fastening the barrel of a gas operated soldering gun with  
improved characteristics.

### **BACKGROUND OF THE INVENTION**

Gas operated soldering guns have been widely used in recent years. It  
has the advantages of quick heating or stopping, high safety, and  
10 convenience. The body of a conventional gas operated soldering gun 3  
having substantially the same construction as the invention is shown in  
phantom lines in FIG. 5. The gun 3 comprises a forward barrel 2 and a  
rearward combustion chamber 32 with flammable gas contained therein. A  
nozzle 22 is threadably secured to a forward end 21 of the barrel 2. A tip 23  
15 is threadably secured to a forward end of the nozzle 22. A spout 31,  
extended forwardly from the combustion chamber 32, is connectable to the  
barrel 2 by performing one of the following techniques.

As shown in FIG. 1, a first technique involves a coupling of the spout  
31 and the barrel 2 by means of mated threaded sections 6. As shown in  
20 FIG. 2, a second technique involves a coupling of the spout 31 and the  
barrel 2 by means of two or more projections 4 urged against the outer  
surface of the spout 31 in which the projections 4 are formed by punching  
on the outer surface of the barrel 2. As shown in FIG. 3, a third technique  
involves a coupling of the spout 31 and the barrel 2 by forming a threaded  
25 hole 5 through the barrel 2 so that a screw 51 can be driven into the hole 5

to fasten the outer barrel 2 to the inner spout 31. A fourth technique involves a coupling of the spout 31 and the barrel 2 by shaping the interior of the barrel 2 differently from the outer surface of the spout 31 so that a rotation of the barrel 2 about the spout 31 or vice versa can fasten them 5 together by snapping.

However, the prior art suffered from several disadvantages with respect to safety and convenience in practice. For example, the coupling by means of the threaded sections 6 as illustrated in FIG. 1 is time consuming in assembly or disassembly of the spout 31 and the barrel 2. As to the 10 projections 4 illustrated in FIG. 2, despite of the benefit of quick assembly it still has the drawbacks of uncontrolled allowances of the projections 4, resulting in a failure of conforming to the spout 31, and disengagement of the spout 31 from the barrel 2 due to long time wear of hard contact between the projections 4 and the spout 31. Such drawback of 15 disengagement of the spout 31 from the barrel 2 is also occurred in the fourth technique. As to the threaded coupling illustrated in FIG. 3, despite of the benefit of reliable fastening it also has drawbacks of requiring a tool (e.g., screw driver) to fasten the screw 51 in assembly or unfasten the screw 51 in disassembly. This is quite time consuming and tedious. Moreover, in 20 removing the heated barrel 2 during operation the user has to use one hand to hold the gun 3 and the other hand to remove the barrel 2. This is quite inconvenient and it is possible of hurting the hand by the hot barrel if enough care is not taken. This is not a safe technique. Thus, the need for improvement still exists.

## **SUMMARY OF THE INVENTION**

It is an object of the present invention to provide a device for fastening a barrel of a gas operated soldering gun to a spout thereof. The fastening device has advantages of quick assembly or disassembly of the barrel and  
5 the spout, increased soldering efficiency, and high safety.

To achieve the above and other objects, the present invention provides a device for fastening a barrel of a gas operated soldering gun to a spout of a combustion chamber thereof. The fastening device comprises a cavity in a rear end of the barrel, a resilient clip disposed in the cavity, and a  
10 plurality of latched pieces on the clip, the latched pieces being disposed inside the clip. The spout can be fastened in the barrel by clinging the barrel to the spout as the latched pieces exert a strong, resilient force onto the spout.

The above and other objects, features and advantages of the present  
15 invention will become apparent from the following detailed description taken with the accompanying drawings.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a forward portion of a gas operated  
soldering gun for illustrating an arrangement of securing a barrel to a spout  
20 of the gun;

FIG. 2 is a cross-sectional view of the forward portion of the gas operated soldering gun for illustrating another arrangement of securing the barrel to the spout;

FIG. 3 is a perspective view of the forward portion of the gas operated  
25 soldering gun for illustrating still another arrangement of securing the

barrel to the spout;

FIG. 4 is an exploded perspective view of a preferred embodiment of device for securing the barrel of a gas operated soldering gun to the spout thereof according to the invention;

5 FIG. 5 is an exploded view of the fastening device with a body of the gun shown in phantom lines;

FIG. 6A is a cross-sectional view of the barrel; and

FIG. 6B is a cross-sectional view of the fastened barrel and the spout.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

10 Referring to FIGS. 4 and 5, there is shown a gas operated soldering gun 3 incorporated a device 1 for fastening a barrel 2 of the gun 3 to a spout 31 of a combustion chamber 32 thereof in accordance with the invention. A nozzle 22 is threadably secured to a forward end 21 of the  
15 barrel 2. A tip 23 is threadably secured to a forward end of the nozzle 22. A parallelepiped tube assembly 24 is mounted in the nozzle 22 for heating the tip 23 in a short period of time. The fastening device 1 comprises a cavity 11 formed in a rear end 211 of the barrel 2, a resilient clip (e.g., C-shaped clip ring as shown) 12 mounted in the cavity 11, and two opposite latched  
20 pieces 13 on the C-shaped clip ring 12, the latched piece 13 being formed by punching on the C-shaped clip ring 12. The latched piece 13 comprises a guide slope 131 integrally formed with the C-shaped clip ring 12, and a bent tab 132 formed at an open end of the guide slope 131.

Referring to FIGS. 6A and 6B in conjunction with FIG. 5, an operation  
25 of the invention will be described in detail below. First, snap the C-shaped

clip ring 12 into the cavity 11 for positioning in which the guide slopes 131 are projected inside the cavity 11 (see FIG. 6A). Next, cling the barrel 2 to the spout 31 until the spout 31 is stopped by a bottom of the cavity 11 after passing the guide slopes 131. In this position, the spout 31 is fastened in the 5 barrel 2 by the joining portions of the tabs 132 and the guide slopes 131 as the guide slopes 131 exert a strong, resilient force toward the spout 131.

For disengaging the barrel 2 from the spout 31, simply pull the barrel 2 forward with one hand by holding the spout 31 with the other hand. Alternatively, for disengaging the barrel 2 from the spout 31 during or after 10 a soldering process, simply use a heat resistant tool to grasp the barrel 2 prior to pulling it forward with one hand and hold the spout 31 with the other hand. In view of the above, the fastening device of the invention not only can carry out a quick assembly or disassembly of the barrel 2 and the spout 31 but also can increase soldering efficiency as well as safety.

15 While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.